CLAIMS

1. A light-emitting semiconductor device which is formed by depositing plural layers of group III nitride compound semiconductor, comprising:

an active layer having single layer structure of a semiconductor layer at least including indium (In),

wherein composition ratio a of indium (In) is in a range of 0.0001 to 0.05, said composition ratio a is varied at a constant period L in waveform in a direction of the z axis which is parallel to the growth axis of said active layer, and said period L is arranged to be an approximately constant value selected from a range of 1nm to 10nm.

2. A light-emitting semiconductor device which is formed by depositing plural layers of group III nitride compound semiconductor, comprising:

an active layer having single layer structure of a semiconductor layer at least including indium (In),

wherein composition ratio a of indium (In) is in a range of 0.0001 to 0.05, said composition ratio a is varied at a constant period L in waveform in a direction of the z axis which is parallel to the growth axis of the active layer, and said period L is arranged to be an approximately constant value selected from a range of one to six times of Bohr radius R.

3. A light-emitting semiconductor device according to claim 1 or 2, wherein said period L is an approximately

constant value selected from a range of 2.4nm to 6.8nm.

4. A light-emitting semiconductor device according to any one of claims 1-3, wherein said composition ratio a is in a range from 0.010 to 0.040.

5. A light-emitting semiconductor device according to any one of claims 1-4, wherein gradient $\partial a/\partial z$ is arranged to be $0.01nm^{-1}$ or less at each place.

6. A light-emitting semiconductor device which is a surface emitting type of semiconductor laser which is manufactured according to a method in any one of claims 1-5, comprising:

reflection planes vertical to the z axis, each of which is formed on and below said active layer, respectively,

wherein optical distance ΔZ between two reflection planes are arranged to an integral multiple of half a oscillation wavelength λ ($\lambda/2$).

7. A light-emitting semiconductor device according to claim 6, wherein said integer number is in a range of from 1 to 10.

8. A method for manufacturing a light-emitting semiconductor device of any one of claims 1-6, wherein supply amount of indium (In) material gas per unit time to the crystal growth surface on which said active layer

grows is varied at a constant period selected from a range of 10 sec. to 6 min.

9. A method for manufacturing a light-emitting semiconductor device of any one of claims 1-8, wherein said period is in an approximately constant selected from a range of 30 sec. to 2 min.

10. A light-emitting semiconductor device according to any one of claims 1-7, wherein said active layer is doped with donor impurity so that electric concentration may be in a range of $1 \times 10^{16}/cm^3$ to $1 \times 10^{18}/cm^3$ at a room temperature.